



## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 25

[Docket No. FAA-2021-0906; Special Conditions No. 25-792-SC]

#### **Special Conditions: Honeywell, Bombardier Model BD-100-1A10 Airplane; Electronic System Security Protection From Unauthorized External Access**

**AGENCY:** Federal Aviation Administration (FAA), Department of Transportation (DOT).

**ACTION:** Final special conditions; request for comments.

**SUMMARY:** These special conditions are issued for the Bombardier Model BD-100-1A10 airplane. This airplane, as modified by Honeywell, will have a novel or unusual design feature when compared to the state of technology envisioned in the airworthiness standards for transport category airplanes. This design feature is the installation of a system that provides wireless data download capability from the engine electronic control unit to Honeywell cloud-based storage. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

**DATES:** This action is effective on Honeywell on [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]. Send comments on or before [INSERT DATE 45 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** Send comments identified by Docket No. FAA-2021-0906 using any of the following methods:

- *Federal eRegulations Portal:* Go to <https://www.regulations.gov/> and follow the online instructions for sending your comments electronically.

- *Mail:* Send comments to Docket Operations, M-30, U.S. Department of Transportation (DOT), 1200 New Jersey Avenue, SE, Room W12-140, West Building Ground Floor, Washington, DC, 20590-0001.
- *Hand Delivery or Courier:* Take comments to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- *Fax:* Fax comments to Docket Operations at 202-493-2251.

*Privacy:* Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received without change to <https://www.regulations.gov/>, including any personal information you provide. The FAA will also post a report summarizing each substantive verbal contact received about these special conditions.

*Confidential Business Information:* Confidential Business Information (CBI) is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to these special conditions contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to these special conditions, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as “PROPIN.” The FAA will treat such marked submissions as confidential under the FOIA, and the indicated comments will not be placed in the public docket of these special conditions. Send submissions containing CBI to the Information Contact below. Comments the FAA receives, which are not specifically designated as CBI, will be placed in the public docket for these special conditions.

*Docket:* Background documents or comments received may be read at <https://www.regulations.gov/> at any time. Follow the online instructions for accessing the docket or go to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

**FOR FURTHER INFORMATION CONTACT:** Varun Khanna, Aircraft Information Systems, AIR-622, Technical Innovation Policy Branch, Policy and Innovation Division, Aircraft Certification Service, Federal Aviation Administration, 2200 South 216th Street, Des Moines, Washington 98198; telephone and fax 206-231-3159; e-mail [varun.khanna@faa.gov](mailto:varun.khanna@faa.gov).

**SUPPLEMENTARY INFORMATION:** The substance of these special conditions has been published in the *Federal Register* for public comment in several prior instances with no substantive comments received. Therefore, the FAA has determined that prior public notice and comment are unnecessary, and finds that, for the same reason, good cause exists for adopting these special conditions upon publication in the *Federal Register*.

### **Comments Invited**

The FAA invites interested people to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data.

The FAA will consider all comments received by the closing date for comments. The FAA may change these special conditions based on the comments received.

### **Background**

On February 24, 2020, Honeywell applied for a supplemental type certificate for installation of the Honeywell Connected Engine Data Access System (CEDAS) in the Bombardier Model BD-100-1A10 airplane, requiring security protection from

unauthorized external access. The Bombardier Model BD-100-1A10 airplane is a twin-engine business jet with a passenger capacity of 16 and a maximum takeoff weight of 40,600 pounds.

### **Type Certification Basis**

Under the provisions of title 14 Code of Federal Regulations (14 CFR) 21.101, Honeywell must show that the Bombardier Model BD-100-1A10 airplane, as changed, continues to meet the applicable provisions of the regulations listed in Type Certificate No. T00005NY, or the applicable regulations in effect on the date of application for the change, except for earlier amendments as agreed upon by the FAA.

If the Administrator finds that the applicable airworthiness regulations (e.g., 14 CFR part 25) do not contain adequate or appropriate safety standards for the Bombardier Model BD-100-1A10 airplane because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

Special conditions are initially applicable to the model for which they are issued. Should the applicant apply for a supplemental type certificate to modify any other model included on the same type certificate to incorporate the same novel or unusual design feature, these special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the Bombardier Model BD-100-1A10 airplane must comply with the fuel vent and exhaust emission requirements of 14 CFR part 34 and the noise certification requirements of 14 CFR part 36.

The FAA issues special conditions, as defined in 14 CFR 11.19, in accordance with § 11.38, and they become part of the type certification basis under § 21.101.

### **Novel or Unusual Design Feature**

The Bombardier Model BD-100-1A10 airplane, as modified by Honeywell, will incorporate the following novel or unusual design feature:

Installation of the Honeywell Connected Engine Data Access System (CEDAS) which provides wireless data download capability from the engine's electronic control unit (ECU) to Honeywell cloud-based storage. CEDAS allows maintenance personnel to wirelessly connect to the ECUs and allows autonomous engine data uploads to cloud data services over WiFi.

## **Discussion**

The Honeywell supplemental type certificate for the Bombardier Model BD-100-1A10 airplane design adds the Connected Engine Data Access System (CEDAS) architecture which is novel for commercial transport category airplanes. CEDAS allows connection to airplane electronic systems and networks, and access from aircraft external sources (e.g., operator networks, wireless devices, Internet connectivity, service provider satellite communications, electronic flight bags, etc.) to the previously isolated airplane electronic assets (networks, systems, and databases). The installation of CEDAS may result in network security vulnerabilities from intentional or unintentional corruption of data and systems required for the operations and maintenance of the airplane.

The existing FAA regulations did not anticipate these networked airplane system architectures. Furthermore, these regulations and the current guidance material do not address potential security vulnerabilities, which could be exploited by unauthorized access to airplane networks, data buses, and servers. Therefore, these special conditions ensure that the security (i.e., confidentiality, integrity, and availability) of airplane systems is not compromised by unauthorized wired or wireless electronic connections. This includes ensuring that the security of the airplane's systems is not compromised during maintenance of the airplane's electronic systems. These special conditions also require the applicant to provide appropriate instructions to the operator to maintain all electronic system safeguards that have been implemented as part of the original network design so that this feature does not allow or reintroduce security threats.

These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

### **Applicability**

As discussed above, these special conditions are applicable to the Bombardier Model BD-100-1A10 airplane. Should Honeywell apply at a later date for a supplemental type certificate to modify any other model included on Type Certificate No. T00005NY to incorporate the same novel or unusual design feature, these special conditions would apply to that model as well.

### **Conclusion**

This action affects only a certain novel or unusual design feature on one model of airplane, as modified by Honeywell. It is not a rule of general applicability and affects only the applicant.

### **List of Subjects in 14 CFR Part 25**

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

### **Authority Citation**

The authority citation for these special conditions is as follows:

**Authority:** 49 U.S.C. 106(f), 106(g), 40113, 44701, 44702, 44704.

### **The Special Conditions**

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for the Bombardier Model BD-100-1A10 airplane, as modified by Honeywell, for airplane electronic system security protection from unauthorized external access.

1. The applicant must ensure airplane electronic system security protection from access by unauthorized sources external to the airplane, including those possibly caused by maintenance activity.

2. The applicant must ensure that electronic system security threats are identified and assessed, and that effective electronic system security protection strategies are implemented to protect the airplane from all adverse impacts on safety, functionality, and continued airworthiness.
3. The applicant must establish appropriate procedures to allow the operator to ensure that continued airworthiness of the airplane is maintained, including all post type certification modifications that may have an impact on the approved electronic system security safeguards.

Issued in Kansas City, Missouri, on October 25, 2021.

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